

## Hypothesis Testing Process

The two main activities of inferential statistics are:

1.)

2.)

So how do we test a claim about a population parameter? What are the steps in a hypothesis test?

Step 1.) What are the **Null** ( ) and **Alternative** ( ) hypotheses?

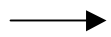
The **Null Hypothesis** is

The **Alternative Hypothesis** is

**Notation:**

“means”

$H_o :$



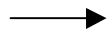
$H_A :$

$H_A :$

$H_A :$

“proportions”

$H_o :$



$H_A :$

$H_A :$

$H_A :$

What is our Final GOAL?

Step 2.) Select a significance Level ( ).

Step 3.) Verify the necessary data conditions and compute the appropriate Test Statistic.

The TEST STATISTIC is

Test Statistic for proportions

Test Statistic for means

**Example for proportions:**

The claim is that less than 50% of internet users, use the internet for making travel plans. Among 734 randomly selected Internet users, it was found that 360 of them use the internet for making travel plans. Find the value of the test statistic.

**Example for means:**

Claim: The mean IQ score of statistics professors is greater than 120. In a random sample of 12 professors, the sample mean was 132 and the sample standard deviation was 12. Find the value of the test statistic.

**Additional homework problems:**

Claim: The mean life span of desktop PCs is less than 7 years. In a random sample of 21 PCs, the sample mean was 6.8 years and the sample standard deviation was 2.4 years. Find the value of the test statistic.

The world's smallest mammal is the bumblebee bat, also known as the Kitti's hog-nosed bat. Such bats are roughly the size of a large bumblebee. Listed below are weights (in grams) from a sample of these bats. Find the test statistic for the claim that these bats come from the same population having a mean weight equal to 1.8g.

1.7   1.6   1.5   2.0   2.3   1.6   1.6   1.8   1.5   1.7   2.2   1.4   1.6   1.6   1.6